

Joint Policy on Hardwoods

I. Need for ~~and~~, Purpose, and History of the Policy

The Board of Forestry and Fire Protection and the Fish and Game Commission recognize the need to work collaboratively under a unified policy to conserve and restore California's hardwood resources. Hardwood resources on hardwood-rangelands and timberlands in California are a vitally important natural and economic resource. They contribute significantly to carbon sequestration, food and habitat for wildlife, stream health, and value to land owners.

In May of 1993, the Board reviewed the results of the Integrated Hardwood Range Program after complaints of the impact of firewood harvesting in a few Northern Sacramento Valley counties and the continued ~~development~~ conversion of hardwood lands to other uses in other parts of the state. The Board ~~reviewed~~ considered the need for statewide regulation of hardwoods and decided that a regulatory scheme was ~~such controls were~~ not warranted at the ~~at~~ time. Rather, the Board opted for a renewed effort to encourage local government and citizens to design strategies that would address local hardwood management and conservation.

These efforts have had ~~Since local efforts have~~ had mixed results in managing and conserving hardwood habitats. ~~;~~ The Board, in consultation with the Commission, CDFW, ~~CalFire~~ CAL FIRE, the Range Management Advisory Committee (RMAC), and ~~any~~ other interested parties, have collaborated to update and reinvigorate the 1994 Joint Hardwoods Policy ~~if~~ for 2018. Should these efforts fail to successfully restore California's hardwood resources, these parties will examine the need for statewide legislation and take regulatory action, if necessary, to control harvesting and conversion of hardwood-rangelands ~~using existing statutes~~.

There are a variety of grant opportunities presently available for hardwood research and restoration efforts. CAL FIRE supports the California Forest Improvement Program, Forest Health, and Fire Reduction grants which may be applicable for hardwood woodlands, forest hardwoods, and riparian hardwoods. These grants aim to reduce fire severity and improve forest health and carbon storage in the state of California through a variety of methods and multi-agency cooperation. The California Fire Safe Council supports a clearinghouse to issue sub-awards to reduce fire hazard in at-risk communities on non-federal land. The Wildlife Conservation Board supports an Oak Woodlands Conservation Program which includes grant distribution that is aimed at supporting sustainable ranch and farming operations that promote and help conserve oak woodlands. Collaborations with these organizations, as well as the Oak Conservation Workgroup and other state, federal, and non-profit organizations will be integral in carrying out the research and restoration necessary to support California's hardwoods.

II. California's Hardwoods

Over 50 species of hardwood trees in California occur widely as individual trees, isolated hardwood forest stands, and distinct habitat types throughout the state. These trees contribute significantly to carbon sequestration ~~and as any stand of trees would. However, hardwood woodlands~~ are an especially valuable carbon resource ~~for California~~ given ~~that~~ they ~~can~~ exist in

arid and semi-arid climates. As California faces the aftermath of the 2011-2018 drought (NIDIS US Drought Portal; <https://www.drought.gov/drought/states/california>) and prepares for future droughts, hardwood woodlands act as a less “thirsty” carbon sink. ~~With water being such a scarce resource and becoming more scarce in the face of a changing climate, hardwood woodlands represent a less thirsty carbon sink.~~

Hardwoods support a wide variety of invertebrate and vertebrate wildlife species by providing habitat for breeding, foraging, cover, and related needs. Habitat types associated with hardwoods support more wildlife species than any other habitats in California (Department of Fish and Game 1989). Specifically, Ohmann and Mayer (1987) used inventory data and habitat models (California Wildlife Habitat Relationships System) to determine that hardwoods rank third in numbers of wildlife species that depend on a specific~~that type of~~ habitat type for reproduction. Acorns from California black oak, blue oak, Oregon white oak, and coast and interior live oak are an important food source for ~~wildlife such as deer in late summer, fall, and early winter.~~ Typically, significant acorn production is associated with mature oak woodlands. Hardwoods also provide substrate for epiphytes such as lichens and mosses, and serve as keystone species for deciduous vegetation communities that support herbaceous plants. Due to their lower annual evapotranspiration rates, ~~d~~Deciduous trees (including many oak species) play an important role in ecosystem maintenance by seasonally generating higher water yields ~~due to their lower annual evapotranspiration rates~~ relative to evergreen trees.

Additionally, hardwood species contribute to fisheries resources by preventing the erosion of hillsides and stream banks, improving fish habitat through the accumulation of large woody debris within riparian corridors, and moderating water temperatures by shading. Riparian systems are also improved by the presence of hardwoods because many low-trophic organisms ~~that are~~ important for native fish and herpetofauna reproduce in the canopy, bark, and cavities of hardwoods, contributing nutrients and food-chain organisms to waterways. Important riparian hardwoods include alders, maples, and willows.

Hardwoods also provide substantial worth to landowners in the form of aesthetic, open space, recreation wood products, and range and property value.

California’s hardwoods have struggled with human population growth, land use changes, drought, pest infestations such as the gold spotted oak borer, disease such as Sudden Oak Death, pollution, record fire seasons (severity of fires, size of fires, and length of season), and other impacts related to climate change in the last few decades. Poor regeneration, biological threats, and changes in habitat availability ~~due to climate change, land use changes, and fire~~ have resulted in declines in California’s hardwood resources and deleterious impacts to water quality, fish and wildlife, and other resources valued by the public. Thus, the Board and Commission are concerned about the successful regeneration of some hardwood species and the associated benefits of the habitat created by these species.

The Board and Commission recognize that there are local differences in land use conditions, pressures and patterns, and management goals and practices that affect conservation needs. Examples include firewood harvest in the northern Sacramento ~~*Valley~~ and residential

Commented [GB1]: CDFW – is there a metric for this? Should that be an action item for CDFW to develop?

development in Southern California, the San Francisco Bay Area, and the Sierra-Nevada foothills. The Board and Commission also recognize that there is local variation in hardwood resources between larger geographic areas. This variation should be addressed within an array of locally developed management approaches for different hardwood species, wildlife habitats, and vegetative communities.

A. Woodlands

Hardwood woodlands are an important subset of California's hardwood resource. Woodland habitat supports over 300 terrestrial vertebrates as well as a wide variety of insects. They are primarily found on rangeland, with 80% of hardwood woodlands in private ownership, and thus face not only natural threats, but also compete with the needs of landowners. Conifer encroachment due to changes in fire regimes across the state present a significant threat to hardwood woodlands. Additionally, hardwood woodlands must contend with a variety of pests and diseases; the gold spotted oak borer is a non-native insect that threatens coast live oak and California black oak and Sudden Oak Death has contributed to significant tree mortality across the state. In the human dimension, rangeland has faced significant threats from urbanization and land-use changes for agriculture. Hardwood woodlands specifically have declined due to firewood harvesting and difficulty with oak regeneration.

B. Forests

Hardwood forests are usually found at a higher elevation and are often mixed with conifer species. Subsequently, effects from changing wildfire regimes impact these hardwoods are more significantly than with hardwood woodlands, resulting in conifer encroachment. Timber harvesting management is also a significant threat to hardwood forests, as hardwoods they compete with the development of more productive and valuable conifer species. Conversely, tan-oak habitat has expanded its prevalence in many regions where as it took over areas were previously cleared of more valuable conifers. This exacerbates the threat of Sudden Oak Death in these areas, as tan oak is a particularly good host for the pathogen.

C. Riparian Hardwoods

Riparian hardwood forests are significant for stream health because they help regulate water temperature, provide food and habitat for organisms throughout the food web, reduce erosion and sediment input, and compete with species that may otherwise increase hazardous fuel loads. Riparian hardwoods These hardwood forests are important for the continuity health of a variety of aquatic and terrestrial organisms, but they are also incredibly important for humans. The benefits that hardwoods supply in riparian zones extend to landowners and consumers by providing also provide clean water for drinking, irrigating crops, and watering livestock. Land-use changes, development, fire and degradation due to conifer encroachment are the greatest threats to these forests riparian hardwoods.

III. Joint Policy

Commented [HE2]: What does this mean?

Commented [GB3R2]: This was a relic from the old policy. I think it is trying to help place emphasis on the "locally developed management approaches" in the next sentence by highlighting the variation in the amount and type of hardwoods in different parts of the state, as well as what threats they are facing, what tools they have available to mitigate those threats, etc. Could probably be reworded to state that more clearly.

Commented [GB4]: From UC Oak Woodland Management webpage https://ucanr.edu/sites/oak_range/Livestock_Management_on_Rangelands/ & FRAP Assessment 2017

Commented [GB5]: FRAP 2003 Assessment

Commented [GB6]: <https://www.fs.fed.us/pnw/pubs/science-update-20.pdf>

Commented [HE7]: is saying "brush and tree species" here accurate?

Commented [GB8R7]: Maybe? Maybe "brush and conifer species" since we mention that specifically later. Maybe just "other species of vegetation", "other vegetation types"? I would imagine that shrubs and other low-lying, more dense species would be the biggest concern for fire threat and block out a lot of tree species that might grow taller and be less of a hazard.

Commented [GB9]: There seem to be a lot of questions from CDFW regarding who will perform the "action items" outlined in the policy and if processes are established. Are we assuming that those items are to be delegated within each agency and a "good faith" compliance is assumed under the policy?

- A. The hardwood resources of California shall be managed for long-term health and resiliency, including the perpetuation of their local and broader geographic representation and to continue to provide for their inherent natural and biological values and processes.
1. These values and processes may include, but are not limited to, regeneration, vascular and non-vascular plant species composition, associated vertebrate and invertebrate species abundance and diversity, vegetation structure and age class distribution, oak habitat quality, water quality, and other biotic and abiotic resources.
 2. Hardwood management should also address stressors and disturbances such as drought, insects, disease, air pollution, wildlife, climate change, and land use changes.
 3. Consistent with such conservation of hardwood resources, state and local incentive policies should be designed to promote ecological resiliency and sustainable economic return from hardwood resource management.
- B. The Board and the Commission encourage CAL FIRE and CDFW to engage in outreach to local jurisdictions which may include, but is not limited to, workshops, development of relationships with landowners, or the creation of informational documents for public use, to assist local governments in developing hardwood conservation policies.
1. The Board and Commission encourage multi-county and regional approaches to addressing hardwood conservation and restoration, as necessary when these issues cross jurisdictional boundaries.
 2. As appropriate, the Board and Commission will encourage collection of data that can assist local governments in addressing issues related to hardwoods, and which can be aggregated to provide information across larger geographic areas or statewide.
 3. Department personnel shall cooperate with other state and federal agencies, local governments, University of California Cooperative Extension and other academic programs, non-profit organizations, landowners, groups representing landowners, and the public to provide for necessary research, information, and education programs related to hardwoods.
- C. Hardwood harvesting and other land uses shall be conducted in a sustainable manner which secures resiliency of all hardwood species; enhances the protection of fish, wildlife, and plants associated with hardwood habitats; maintains a baseline of species composition, age structure, and structural complexity of hardwood elements at the landscape level; allows adequate recruitment of other native vegetation in hardwood habitats; and meets state and federal water quality standards. Management decisions in these habitats shall also consider private ownership goals, property rights, and community economics.

Commented [GB10]: CDFW: How "encourage"? who will conduct the assessment/standards? Are "standards" established? Who do the counties/entities contact? Who will collect data? How is it shared? Common database? Incorporate into CNDDB/revive the rare natural community program?

1. In cooperation with private landowners, the Oak Conservation Workgroup, and associated local agencies, Department personnel shall jointly establish a process, which includes both satellite imagery analysis and field based habitat assessments to monitor the status of hardwood habitats and associated aquatic and terrestrial species, to examine the effectiveness of local policies with respect to hardwoods, and to promote retention standards that maintain hardwood habitats and associated species elements. Staff should report annually, in joint session, to the Commission and the Board.
2. As the climate continues to change, so too does the landscape, making water availability and temperature ranges less predictable and less akin to past conditions. Department personnel shall support, as staff capabilities and funding allow, research into the effectiveness of conserving existing hardwood stands, restoring waning stands, or investing in new regions where stands may exist under changing climate should be part of hardwood restoration efforts.

Commented [GB11]: CDFW: has this process been established? Who is involved? Consider adding threshold indices?

Commented [GB12]: Is this feasible to carry out?

Commented [HE13]: ??????? this whole thing is a huge lift

- D. The Board and Commission will meet periodically to review implementation of this policy and to clarify and resolve issues that arise from overlapping interests of their respective departments.

Commented [GB14]: should we define a time frame? Every other year or something?

IV. Specific Policy from the Commission to the Department of Fish and Wildlife

Commented [GB15]: Many small revisions from CDFW comments

In addition to the joint policy, the Commission specifically charges CDFW with the following:

- A. Contingent upon funding and staffing availability, CDFW should conduct, contract, and/or support studies involving assessing the effects of the distribution and densities of the following hardwoods on local flora and fauna, including: (1) blue oak and associated vascular and on-vascular plant species in blue oak-dominated habitats; (2) black oak and associated plant species in black oak-dominated habitats; (3) Oregon white oak and associated plant species in white oak-dominated habitats; (4) valley oak and associated plant species in valley oak-dominated habitats; (5) tan oak and associated plant species in tan oak dominated habitats; (6) canyon live oak and associated plant species in canyon live oak-dominated habitats; (7) interior live oak and associated plant species in interior live oak-dominated habitats; (8) coast live oak and associated plant species in coast live oak-dominated habitats; (9) willow and alder trees and associated plant species in riparian habitats.
- B. Contingent upon funding and staffing availability, CDFW should conduct, contract, and/or support projects focused on hardwood restoration, the effects of climate change on hardwood resources, the impacts of Sudden Oak Death and

Commented [GB16]: CDFW: Has VegCAMP done some of this? Maybe say "funding shall be allocated" instead of "contingent upon funding"?

insect threats such as the Golden-spotted Oak Borer, and the effectiveness of current policies in combatting these threats.

Commented [GB17]: CDFW: Could funding be allocated from AB1492?

- C. Perform education and outreach within local jurisdictions aimed at conservation and restoration of oak woodlands and other hardwood resources.
- D. CDFW shall continue to review proposed CEQA projects, including timber harvesting activities and when appropriate, recommend measure to conserve hardwood resources and mitigate significant adverse impacts upon fish, wildlife, and botanical resources.
- E. Relative to the removal of hardwoods, CDFW shall recommend, seek, and support the adoption of proposals appropriate for the protection and enhancement of fish, wildlife, and botanical resources.
- F. CDFW shall periodically reassess the terms and conditions of existing regulations, permit processes and other administrative measures which affect conservation of hardwood resources and, where feasible, seek corrective action when the original terms and conditions have proven inadequate.
- G. CDFW shall help with identification and implementation of restoration and management activities in the appropriate areas that will maximize the potential for the restoration of the true oak hardwood forest ecosystem.
- H. CDFW encourages the maintenance, enhancement or expansion of oak as a component in other forested stands for fall oak mast production at the highest practical sustainable level.
- I. If after consulting with the Project proponent, CDFW still opposes the proposed project affecting hardwood resources, it will notify the Commission and/or Board of its opposition, including appropriate scientific evidence. This opposition may include, but is not limited to, the issuance of permits or licenses, authorization of programs, and the appropriation of funds which it determines will result in the removal of hardwoods and other modifications of hardwood habitats and communities in a manner that will result in significant adverse effects to fish, wildlife, or plant resources for which mitigation and compensation measures are judged to be inadequate.
- J. In the event of disagreement over implementation of this policy with CAL FIRE, CDFW shall inform the Commission of the disagreement.
- K. CDFW shall provide active liaison to the Board and Range Management Advisory Committee in issues related to hardwoods, fish, wildlife, and botanical

Commented [GB18]: Could the EMC fund research about the effectiveness of policies/regulations on hardwood landscapes?

Commented [GB19]: CDFW: Have there been any reassessments previously? Is that information accessible? Make this annual or biannual?

Commented [GB20]: New from CDFW comments

species, and the impacts of vegetation management and wildfire on these resources.

- L. Annually, CDFW will include a statement in the Director's report to the Commission addressing the status of hardwood conservation.

Commented [GB21]: CDFW: Unclear whether the CDFW Director gives an official annual report to the Fish and Game Commission. This statement could be included in the AB 1492 report to legislature instead.

V. Specific Policy from the Board to CAL FIRE

In addition to the administration of Departmental programs consistent with this joint policy, the Board specifically charges CAL FIRE with the following:

- A. Communicate to the Board, through the Annual Call for Regulatory Review, areas where the Forest Practice Rules and/or Act could be revised to incentivize hardwood retention and protection.
- B. Implement a fire prevention program that minimizes the impact of wildlife on life and property and where possible maximizes fire's natural beneficial effects on hardwood ecosystems.
 - i. Consult with CDFW to address issues related to the role of fire in hardwood-dominated ecosystems and the impacts of pre-fire, during-fire, and post-fire agency activities.
 - ii. Support research and development for hardwood utilization.
 - iii. Support research regarding the effects of climate change on fire size, frequency, and severity and its direct effects on hardwoods.
- C. Contingent upon funding and staff availability, and in consultation with CDFW, provide for a thorough assessment of the status of the hardwood resource at least once every five years, commencing with 1995.
- D. CAL FIRE shall provide active liaison to the Commission and Range Management Advisory Committee on hardwood issues related to forest and vegetation management, wildfire protection, and wildfire prevention.
- E. In the event of disagreement over implementation or interpretation of this policy with CDFW, CAL FIRE shall inform the Board of the disagreement.

Commented [GB22]: CDFW: main priorities of this assessment? Include in 2015 SWAP? SWAP link valuable for staff reviewing projects.